Appendix C

Special Issues Regarding Data on Injuries

U.S. Department of Health & Human Services
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Introduction

Injuries, both intentional and unintentional, are a significant public health concern. In 1995, 147,891 persons died as a result of an injury, with injuries accounting for 6.4 percent of all deaths among residents of the United States. Age-specific proportions of injury deaths varies from lows of 2-4 percent of all deaths among infants and persons 55 years and older to 52 percent for young children 5-14 years of age, and peaking at 79 percent of all deaths among teenagers 15-19 years of age, and then declining through later adult years.[1]

However, the public health significance of injuries extends far beyond mortality rates. Injury epidemiologists suggest that mortality due to injury is merely the "tip of an iceberg" that becomes successively larger when considering the number of hospitalizations, emergency department visits, physician visits, and self-treatment due to injury.[1, 2] In addition to the fatalities due to injuries, in 1995, there were 2.6 million discharges from short-stay general hospitals among persons who had an injury as their first-listed diagnosis; this accounted for 8 percent of all short-stay hospital discharges. Also, in 1995 there were 37.0 million visits to emergency departments for the treatment of injuries, representing 37 percent of all emergency department visits. Among children 5-14 years of age, one half of all emergency department utilization was for an injury compared with about one-fourth for children under 5 years of age.[1]

Key decision makers and the general public may be unaware of the magnitude of the injury problem in comparison to other public health problems. The data are compelling - as the major killer of all Americans between the ages of 1 and 44, injury is a public health problem of enormous importance.[2] However, "data cannot speak." The key to addressing injury is leadership that has command of the data and an ability to persuade others of the need to develop strategies for injury prevention.[2]

Unfortunately, information on the frequency, characteristics, and circumstances of injuries is decidedly lacking in accuracy and scope. Careful examination of data is an essential step in understanding the circumstances surrounding injuries, identifying populations at risk, and developing effective interventions for prevention and control of injuries, including legislation, environmental changes, and education.[1,3] However, under the current system of surveillance, public health practitioners must piece together injury data from a wide variety of national, state and local sources. The quality of data from these sources varies according to classification system used, amount of detail recorded, and level of aggregation. During the past decade, public health practitioners and researchers interested in injury prevention and control have called for the standardization of injury data systems.[2] The following is a brief overview of current

sources for injury data and a discussion of current and future trends in national systems for injury surveillance.

Current Sources of Injury Data

National Data Sources

The National Center for Injury Prevention and Control (NCIPC) at the Centers for Disease Control and Prevention (CDC) recently published an inventory of federal data systems providing national data on injuries in the United States.[4] Characteristics of 31 federally-funded national data systems containing information on injury mortality, morbidity, or risk factors were reported. For each data source, the inventory includes information on federal agency, purpose, description, data collection methods, inclusion criteria, exclusion criteria, strengths and limitations. The data sources included in the inventory were national in nature, frequently aggregating state level data or based on nationally representative surveillance systems or survey responses. Generally, the strengths of these data sources are in the aggregation of a large number of injury cases to reveal patterns of injury and the opportunity that they afford for comparison between geographically defined boundaries. The level of detail with regard to the circumstances of injury, type of injury or cause of injury varies from one source to another, but generally is not as informative as data obtained from more proximal sources. Other issues which must be considered in use of national data include the time lag between injury occurrence and data availability, the degree of uniformity in reporting systems, and whether the national data can extrapolated to indicate injury problems at the state and local level.

State and Local Data Sources

A wide variety of data collection systems are implemented at the state and local level. At the state level, mortality files including death certificates, medical examiner reports and autopsy reports can provide information on fatal injuries. Some states have trauma registries, motor vehicle department records, or criminal justice data systems that can provide information on specific types of injuries, including circumstances surrounding motor vehicle accidents and assaults. Other sources include hospital discharge data, emergency department visits, emergency medical service records, or information documented by poison control centers, State Department of Labor, OSHA, insurance companies or health maintenance organizations. Locally, police, fire, school or parks and recreation departments can serve as useful sources of information. The strengths of state and local sources are in their ability to identify a local injury problem and the level of detail which they can provide regarding the circumstances and outcome of injury. Retrieving data from many of these sources, however, can be time consuming and expensive. In some cases, local data sources may contain too few cases from which to draw inferences or the data may be incomplete or of uneven quality.[2]

A new publication, Health 1997,that includes an Injury Chartbook, has been recently released from the National Center for Health Statistics. The Injury Chartbook provides an excellent reference for defining the magnitude and scope of injuries in the United States. In addition to a detailed description of sources of injury data, the Chartbook contains charts and graphs which focus on key variables of interest for prevention, including age, sex, cause, or mechanism and intent or manner of the injury. The Chartbook is designed to serve as a tool for many audiences interested in injury control and prevention.[1]

New Developments in Coding Systems for Injury Incidents

E-Codes

Over the past few years, the injury prevention community has expressed the need to develop standard groupings of external-cause-of injury codes (E-codes) for tracking and analyzing injury mortality data and morbidity data for research, surveillance and prevention activities. Establishing cause-specific groupings for E-codes would provide a framework for reporting injury data at the local, state and national level and allow for comparisons of injuries rates across geographic divisions. For example, injury mortality data have been published only in broad categories, such as motor vehicle accidents, homicide, and suicide. However, these groupings represent aggregates of many different types of injury mechanisms, (e.g. firearms, falls, drownings, suffocations, etc.) More detailed, cause-specific injury data are required for monitoring the occurrence and outcomes of injuries and for planning and evaluating the effectiveness of prevention and intervention programs.[1]

Currently, there are 17 states that have mandated E-coding in their hospital discharge data systems. Consequently, there are no national baseline data for injuries documented through the use of hospital discharge data. The Centers for Disease Control and Prevention recently published a recommended framework for presenting injury mortality data. Through the use of E-codes, the framework permits grouping of the circumstances of an injury or poisoning along two dimensions: intent (i.e. manner) and mechanism of injury (i.e. cause of death). Intent is classified into four groupings: accident (i.e. unintentional), suicide (i.e. intentionally self-inflicted), homicide (i.e. intentionally inflicted by another), and intent undetermined. The external agents or particular activities that caused the injury (e.g. motor vehicle, firearm, submersion, fall, or poisoning) are used to describe the mechanism. An injury matrix incorporating both dimensions (mechanism and intent) can be used to examine injury mortality data and provide a clearer picture of the burden of cause-specific, injury-related deaths. The framework permits the inclusion of a third dimension of interest such as age or gender.[1]

In April 1996, the proposed matrix tables for presenting injury mortality and morbidity data were released for review and comment; followed by a presentation at a workshop

of the International Collaborative Effort on Injury Statistics and at the annual meeting of the American Public Health Association meeting. Suggestions and recommendations from these discussions were used to further refine the framework. This new system - ICD-10-CM external cause of injury codes - will not be used in the United States until after the year 2000. NCHS (301-436-7050 is heading up the further development of these ICD-10-CM codes. They will not be referred to as "E -codes as the ICD-10 coding system is quite different from ICD-9. E-codes have been changed to alphanumeric codes, necessitating a crosswalk between the two systems; NCHS will be developing this crosswalk mechanism.[1]

To assess the current use of E-codes in statewide hospital discharge data systems and statewide hospital emergency department data systems, the Data Committee of the Injury Section of APHA is conducting a survey of all 50 states and territories. The Committee plans to release preliminary findings at the annual meeting of the American Public Health Association Meeting in November, 1997 at the Injury Section Round Table on E-coding. This will be followed by a published report.

DEEDS (Data Elements for Emergency Department Systems)

Because of the case-mix and volume of patients they treat, the estimated 4,800 emergency departments in the United States are well positioned to provide data for public health surveillance, community risk assessment, research, education, training, quality improvement, health care administration and finance and other uses. However, variations in the methods used for entering data in different ED record systems impeded the use of the data for secondary applications. The Centers for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control (NCIPC) is coordinating one of these initiatives - a public-private partnership that has developed recommended specifications for many of the observations, actions, instructions and conclusions that are entered in emergency department records. *Data Elements for Emergency Department Systems, Release 1.0 (DEEDS)* is the initial product of this effort. DEEDS is intended for voluntary use and provides uniform specifications for data elements that decision makers may choose to retain, revise or add to their ED record systems. The purpose of DEEDS is not to establish an essential or minimum data set, but to foster greater uniformity among individual data elements that harmonize with prevailing standards for electronic data entry and exchange.[5]

The National Workshop on Emergency Department Data was held in January 1996, providing a forum for review and discussion of an early draft of DEEDS. The 160 workshop participants, among them representatives of 12 federal agencies and 35 professional associations, contributed recommendations for improving the document. Work continued through 1996, culminating with Release 1.0 in January 1997. Future versions of DEEDS will be made as a result of field testing, new developments in health data standards, advances in information technology and changes in the needs of emergency departments.[5]

References:

1. Fingerhut LA, Warner M. *Injury Chartbook*, in *Health, United States* 1996-97. Hyattsville, MD, National Center for Health Statistics, 1997.

2. US Department of Health & Human Services, The National Committee for Injury Prevention and Control. *Injury Prevention: Meeting the Challenge*. New York: Oxford University Press, 1989.

3. US Department of Health & Human Services, Public Health Service, Centers for Disease Control. Recommended framework for presenting injury mortality data. *MMWR.* August 29, 1997; 46 (RR-14): 1-30.

4. Annest JL, Conn JM, James SP. *Inventory of Federal Data Systems in the United States for Injury Surveillance, Research and Prevention Activities*. Atlanta: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, May 1996.

5. National Center for Injury Prevention and Control. Data Elements for Emergency Department Systems (DEEDS), release 1.0. Atlanta, GA: Centers for Disease Control and Prevention, 1997.